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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/774,639	02/01/2001	Steven M. Ruben	PZ013P1C1	8758

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EXAMINER	
MYERS, CARLA J	

ART UNIT	PAPER NUMBER
1634	

DATE MAILED: 10/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/774,639	Applicant(s) RUBEN ET AL.	
	Examiner Carla Myers	Art Unit 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 July 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,11,13,17-20 and 22-77* is/are pending in the application.

4a) Of the above claim(s) *1,13,17-20,22-24 and 77* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *11 and 25-76* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *10* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

ELECTION/RESTRICTIONS

1. Applicant's election with traverse of group II, claims 11 and newly added claims 25-76 and SEQ ID NO:139, in Paper No. 9, filed July 26, 2002 is acknowledged. The traversal is on the ground(s) that it would not require a serious burden to examine all of the inventions together. It is further stated that a search of the nucleic acids would provide useful information about the proteins, which in turn would provide useful information about the antibodies, which would provide useful information about the inventions of groups IV-X.

Applicants arguments have been fully considered but are not persuasive because it is maintained that undue burden would be required to examine the claims of groups I and III-X together with the claims of group II. Restriction of related inventions is proper if it be shown that the inventions have a different classification, or have acquired a separate status in the art or have a different field of search (see MPEP 808.02). The claims of groups I-X have acquired a separate status in the art as recognized by their different classification and as recognized by their divergent subject matter, as set forth in the Office action of Paper No. 8. A search of the distinct inventions would not be co-extensive as evidenced by the requirement for searching different keywords and nucleic acid and amino acid sequences and by the different classification of each invention. In particular, a search for proteins would not lead one to all references teaching antibodies since antibodies may be generated without a purified protein. Further, a search for nucleic acid sequences does not lead one to all references teaching isolated proteins and vice versa. Proteins may be isolated from natural sources and thereby obtaining an isolated protein

does not require an isolated nucleic acid sequence. Therefore, undue burden would be required to examine each of the claimed inventions.

The requirement is still deemed proper and is therefore made FINAL.

Accordingly, claims 11 and 25-76, with respect to SEQ ID NO: 139 are currently under examination. Claims 1, 13, 17-20, 22-24 and 77 are withdrawn from consideration as being drawn to a non-elected invention.

INFORMATION DISCLOSURE STATEMENT

2. The sequences recited in references AC-AL of the Information Disclosure Statement filed July 26, 2002 have been considered to the extent that was possible absent an explanation of the relevance of these sequences to the currently claimed invention.

CLAIM REJECTIONS- 35 U.S.C. § 101 AND 112

3. The pending claims have been reviewed in light of the Utility Examination Guidelines and Guidelines for Examination of Patent Applications under 35 U.S.C. 112, first paragraph, "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1092-1111, Friday, January 5, 2001.

The examiner is using the following definitions in evaluating the claims for utility.

"Specific" - A utility that is *specific* to the subject matter claimed. This contrasts with a *general* utility that would be applicable to the broad class of the invention.

"Substantial" - A utility that defines a "real world" use. Utilities that require or constitute carrying out further research to identify or reasonably confirm a "real world" context of use are not substantial utilities.

"Credible" - Credibility is assessed from the perspective of one of ordinary skill in the art in view of the disclosure and any other evidence of record that is probative of the applicant's assertions. That is, the assertion is an inherently unbelievable undertaking or involves implausible scientific principles.

"Well-established" - a specific, substantial, and credible utility which is well known, immediately apparent, or implied by the specification's disclosure of the properties of a material, alone or taken with the knowledge of one skilled in the art.

4. 35 U.S.C. § 101 reads as follows:

> "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title".

Claims 11 and 25-76 are rejected under 35 U.S.C. § 101 because the claimed invention lacks patentable utility due to its not being supported by a specific, substantial, and credible utility or, in the alternative, a well-established utility.

The claims are drawn to isolated polypeptides comprising the amino acid sequence of SEQ ID NO: 139 or a fragment thereof, polypeptides having 90% or 95% identity to SEQ ID NO: 139, polypeptides consisting of amino acids 19-47 of SEQ ID NO: 139 and polypeptides

consisting of at least 30 or 50 amino acids of SEQ ID NO: 139. The claimed polypeptides are not supported by a specific utility because the utilities disclosed for these polypeptides are generally applicable to all nucleic acids. The specification (see, for example, pages 78-79) teaches that the claimed polypeptides are "primarily" expressed in activated helper T-cells and therefore can be used to identify the tissue or cell type present in a biological sample. However, expression of a polypeptide in activated helper T-cells is not considered to be a specific utility since there are a multitude of other polypeptides that are also expressed in activated helper T-cells. Furthermore, the recitation that the polypeptide is "primarily" expressed in activated helper T cells indicates that the polypeptide would also be expressed in other cell types and therefore cannot be used as a marker specifically for helper T-cells.

The claimed nucleic acid is also not supported by a substantial utility because each of the utilities disclosed in the specification requires performing further research and does not constitute a real-world use. For example, the specification states that the claimed polypeptides "share sequence homology with the P195 protein of Plasmodium falciparium which is thought to be important in the incidence of malarial infection". Based on this homology, the specification suggests that the claimed polypeptides could be used in a vaccine for malaria immunity (page 79). However, the specification does not provide any information on the level of sequence identity shared between the claimed polypeptides and the P195 protein of Plasmodium falciparium. Further, the claimed polypeptide is a human polypeptide and would have distinct functional properties from a Plasmodium polypeptide which is associated with causing malaria in

humans. The specification has not established a nexus between the claimed polypeptides and malaria. A stated belief that a correlation exists between a polypeptide and a disease is not sufficient to establish that the polypeptide could be used to generate a vaccine against the disease. Extensive research would be required to determine if the claimed polypeptides are associated with immunity to malaria and to then determine if the polypeptides could be utilized in a vaccine to confer immunity to malaria. The specification also contemplates using the claimed polypeptides for the treatment and diagnosis of hematopoietic disorders, such as anemia, pancytopenia, leukopenia, thrombocytopenia or leukemia. The specification (page 79) additionally states that the "gene product may also be involved in lymphopoiesis, therefore, it can be used in immune disorders such as infection, inflammation, allergy, immunodeficiency, etc." However, again, the specification has not established a clear nexus between any of these disorders and the polypeptides of the claimed invention. Clearly, further research would be required to identify a disease for which the encoded protein is involved and for which treatment with the polypeptide of SEQ ID NO: 139 would be effective or for which detection of the polypeptide of SEQ ID NO: 139 would be informative. As stated in Brenner v. Manson, 383 U.S. 519 535-536, 148 USPQ 689, 696 (1966) " a patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion." While polypeptides of SEQ ID NO: 139 could be isolated to obtain protein for use in research aimed at determining or characterizing the polypeptides function, such use is general, rather than specific and substantial. Support for an asserted utility that is specific and substantial would require, for example, a

showing of a particular function for an encoded polypeptide. Merely identifying and studying the properties of a polypeptide or the diseases in which a polypeptide may be involved does not constitute a "real world" context of use. Accordingly, the claimed invention is not supported by a currently available specific or substantial asserted utility or a well-established utility. Further, the claimed polypeptides are not supported by a well-established utility.

5. Claims 11 and 25-76 are also rejected under 35 U.S.C. § 112, first paragraph. Specifically, since the claimed invention is not supported by a specific, substantial, and credible utility or a well-established utility for the reasons set forth above, one skilled in the art would not know how to use the claimed invention. It is further noted that even if the specification were enabling for polypeptides consisting of SEQ ID NO: 139, the specification is not enabling for polypeptides comprising fragments of SEQ ID NO: 139 or polypeptides having 90% or 95% sequence identity with SEQ ID NO: 139 because the specification has not established a specific activity for these variants and has not provided sufficient guidance as to how to use the claimed variants.

Additionally, with respect to claims 11, 31-36, 42-46, 52-56, 62-66, and 72-76, the specification has not adequately taught how to make and use the polypeptides encoded by the HBJEF12 cDNA contained in ATCC Deposit No. 209177 because the specification has not fulfilled the requirements for the deposit of this cell line. Since it is not known whether cell lines containing HBJEF12 are known and publicly available or can be reproducibly isolated and because the best mode disclosed by the specification requires the cell line deposited under ATCC Deposit No. 209177, A suitable deposit for patent purposes is required. While it is noted that the

specification provides the address of the depository, and the date of the deposit (see pages 4 and 162), the specification does not provide the required assurances that all of the conditions of 37 CFR sections 1.801-1.809 have been met. Since the deposits were made under the terms of the Budapest Treaty, an affidavit or declaration by applicant, or a statement by an attorney of record over his or her signature and registration number, stating that the specific cell lines have been deposited under the Budapest Treaty, that the cell lines will be irrevocably and without restriction or condition released to the public upon the issuance of a patent and that the cell lines will be replaced should they ever become non-viable, is required. This requirement is necessary when deposits are made under the provisions of the Budapest Treaty as the Treaty leaves these specific matters to the discretion of each State.

For further information concerning deposit practice, applicants attention is directed to In re Lundark 773 F 2d 1216 227 USPQ 90 CCAFC and 37 CFR 1.801-1.809.

6. Claims 11 and 25, 29-32, 34-71 and 74 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are drawn to polypeptides comprising fragments of SEQ ID NO: 139 wherein said polypeptides have biological activity, polypeptides having 90% or 95% identity with SEQ ID NO: 139, and polypeptides comprising the secreted portion of the polypeptide of SEQ ID NO: 139 or of the polypeptide encoded by the HBJEF12 cDNA contained in ATCC Deposit No. 209177. The specification teaches the polypeptide consisting of SEQ ID NO: 139 and teaches a

secreted version of the polypeptide consisting of amino acids 19-47 of SEQ ID NO: 139. The specification has not established a clear biological function for the claimed full length or secreted polypeptides. With respect to polypeptides "having biological activity," the specification (page 6) defines "biological activity" as including polypeptides having similar, but not necessarily identical activity to the polypeptide of SEQ ID NO: 139. It is further stated that the polypeptide may also have less or more activity than the polypeptide of SEQ ID NO: 139. However, since the specification has not established a biological activity for SEQ ID NO: 139, one of skill in the art would not know what constitutes a similar biological activity and thereby could not screen variants for this activity. Additionally, the specification has not identified any variants having similar activity or having more or less activity than the polypeptide of SEQ ID NO: 139. With respect to polypeptides comprising fragments of SEQ ID NO: 139, the claims are inclusive of polypeptides containing an unstated number of amino acids from SEQ ID NO: 139 (e.g., 1, 2 ,3 etc amino acids) and containing flanking sequences of unknown identity and length. The specification has not exemplified any variants containing only a portion of SEQ ID NO: 139 and has not adequately described the sequences which may flank SEQ ID NO: 139 and fragments thereof. No homologs or other types of variants have been identified which share only 90% or 95% identity with SEQ ID NO: 139 and the specification has not identified a functional activity for such homologs and variants. Accordingly, while polypeptides consisting of SEQ ID NO: 139 and polypeptides consisting of amino acids 19-47 of SEQ ID NO: 139 meet the written description requirements of 35 U.S.C. 112, first paragraph, the specification does not disclose and fully characterize the genus of any variant of the protein of SEQ ID NO: 139. *Vas-Cath Inc.*

V. Mahurkar, 19 USPQ2d 1111, clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. The invention is, for purposes of the 'written description' inquiry, whatever is now claimed". Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. 112 is severable from its enablement provision. In *The Regents of the University of California v. Eli Lilly* (43 USPQ2d 1398-1412), the court held that a generic statement which defines a genus of nucleic acids by only their functional activity does not provide an adequate written description of the genus. The court indicated that while Applicants are not required to disclose every species encompassed by a genus, the description of a genus is achieved by the recitation of a representative number of DNA molecules, usually defined by a nucleotide sequence, falling within the scope of the claimed genus. At section B(1), the court states that "An adequate written description of a DNA...' requires a precise definition, such as by structure, formula, chemical name, or physical properties', not a mere wish or plan for obtaining the claimed chemical invention". In analyzing whether the written description requirement is met for a genus claim, it is first determined whether a representative number of species have been described by their complete structure. In the instant case, only 2 members of the broadly claimed genus of variants have been defined in terms of their structure. It is then determined whether a representative number of species have been sufficiently described by other relevant identifying characteristics (e.g., in terms of a specific functional activity). In the instant case, no such identifying characteristics have been provided for any additional variants. Specifically, the claims do not provide a functional limitation for the claimed proteins and the recitation in claim

11 of a "biological activity" is so broad as to not provide a meaningful limitation to the claims. The broadest reasonable interpretation of the claims indicates that the claims are inclusive of a large genus of polymorphic and mutant variants and splice variants of the polypeptide of SEQ ID NO: 139. However, the specification does not exemplify any polymorphisms or mutations in this polypeptide and has not identified any nucleic acid splice variants encoding variant forms of SEQ ID NO: 139 . While one could contemplate an amino acid substitution, deletion or addition at each and every position in the polypeptide of SEQ ID NO: 139, such alterations are not considered to be equivalent to specific naturally occurring allelic variants of this polypeptide. Accordingly, knowledge of the sequence of SEQ ID NO: 139 does not allow the skilled artisan to envision all of the contemplated polymorphic and splice variants encompassed by the claimed genus of proteins. Therefore, Applicants have not provided sufficient evidence that they were in possession, at the time of filing, of the invention as it is broadly claimed and thus the written description requirement has not been satisfied for the claims as they are broadly written. Applicants attention is drawn to the Guidelines for the Examination of Patent Applications under 35 U.S.C. 112, ¶ 1 "Written Description" Requirement, Federal Register, Vol. 66, No. 4, pages 1099-1111, Friday January 5, 2001.

7. Claims 28, 30, 34, 36, 39, 41, 44, 46, 49, 51, 54, 56, 61, 64, 66, 69, 71, 74 and 76 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 30, 36, 41, 46, 51, 56, 61, 66, 71 and 76 are indefinite over the recitation of "expressing the protein of claim _ by a cell". It is generally accepted that a nucleic acid is

expressed by a cell. However, it is unclear as to what is intended to be meant by a expressing a protein a cell.

Claims 28, 34, 39, 44, 49, 54, 59, 64, 69, and 74 are indefinite over the recitation of "which further comprises a polypeptide sequence heterologous to SEQ ID NO: 139." This recitation does not further limit the claims from the claims from which they depend since this limitation adds a new element to the claimed polypeptides. Furthermore, it is unclear as to what is intended to be encompassed by a sequence heterologous to SEQ ID NO: 139. For example, it is unclear as to whether this recitation to only fusion proteins containing, e.g. His or HA tags, or whether this recitation includes variants of the sequence of SEQ ID NO: 139 derived from another species. Clarification of the claim is required.

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in-
> (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
> (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claim 11 is rejected under 35 U.S.C. 102(e) as being anticipated by Veenstra et al (US. Patent No. 5,882,879).

Veenstra discloses a polypeptide (referred to therein as SEQ ID NO: 13) which "comprises" a fragment of instant SEQ ID NO: 139. It is noted that claim 11 is inclusive of polypeptides comprising any length fragment of SEQ ID NO: 139. While the claim recites that the polypeptide fragment has "biological activity", this phrase is so broadly defined in the specification (page 6) so as to include any activity of a protein. Accordingly, the claimed invention is anticipated by the polypeptide of Veenstra.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carla Myers whose telephone number is (703) 308-2199. The examiner can normally be reached on Monday-Thursday from 6:30 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones, can be reached on (703)-308-1152. The fax number for the Technology Center is (703)-305-3014 or (703)-305-4242.

Any inquiry of a general nature or relating to the status of this application should be directed to the receptionist whose telephone number is (703) 308-0196.

Carla Myers
October 16, 2002

Carla Myers
CARLA J. MYERS
PRIMARY EXAMINER